

## 1 CLAIMS

2

3 1. A surgical implant for supporting the urethra,  
4 the implant including at least two fixing zones  
5 and a supporting zone, the supporting zone  
6 being interposed between the fixing zones and  
7 the fixing zones each having at least one  
8 retaining means for anchoring the fixing zones  
9 in the tissues of the retropubic space without  
10 penetrating the rectus sheath such that in use  
11 the supporting zone passes under the urethra.

12

13 2. A surgical implant for supporting the urethra  
14 comprising an anchor strip the anchor strip  
15 comprising at least one fixing zone having at  
16 least one retaining means wherein in use a  
17 first portion of the anchor strip is retained  
18 in the tissues of the retropubic space above  
19 the endopelvic fascia and a second portion of  
20 the anchor strip extends into the urethral  
21 pressure compartment below the endopelvic  
22 fascia and thereby supports but does not pass  
23 under the urethra.

24

25 3. A surgical implant as claimed in claim 1  
26 wherein the supporting zone is comprised of  
27 mesh.

28

29 4. A surgical implant as claimed in any preceding  
30 claim wherein the retaining means are moveable  
31 from an inserting position to a retaining  
32 position.

- 1
- 2 5. A surgical implant as claimed in claim 4
- 3 wherein the retaining means is at least one
- 4 projection which can project from the implant
- 5 into the tissues of the retropubic space in at
- 6 least one plane the projection being moveable
- 7 from a collapsed position to an extended
- 8 position.
- 9
- 10 6. A surgical implant as claimed in any preceding
- 11 claim wherein the retaining means is glue.
- 12
- 13 7. A surgical implant as claimed in claim 6
- 14 wherein the glue is cyanoacrylate glue.
- 15
- 16 8. A surgical implant as claimed in any preceding
- 17 claim wherein the fixing zone has a pointed end
- 18 at a first end, a base portion at a second end,
- 19 wherein longitudinal edges extend between the
- 20 pointed end and the base and the longitudinal
- 21 edges are notched to provide a row of
- 22 projections extending outward from the
- 23 longitudinal edges.
- 24
- 25 9. A surgical implant as claimed in any preceding
- 26 claim wherein the implant is comprised of
- 27 plastics material.
- 28
- 29 10. A surgical implant as claimed in any preceding
- 30 claim wherein the implant is comprised of
- 31 absorbable material.
- 32

- 1      11. A surgical implant as claimed in claims 1 or 3  
2            to 10 wherein the material of the supporting  
3            zone is more quickly absorbed by the body than  
4            the material of the fixing zones.  
5
- 6      12. A surgical implant as claimed in any preceding  
7            claim wherein the implant further comprises at  
8            least one resilient zone wherein the resilient  
9            zone provides for resilient extension of the  
10           implant along its longitudinal axis.  
11
- 12     13. A surgical implant as claimed in claim 12  
13           wherein the resilient zone is interposed  
14           between the fixing zone and the supporting  
15           zone.  
16
- 17     14. A surgical implant as claimed in any preceding  
18           claim wherein the unextended length of the  
19           implant is 6 to 22 cm.  
20
- 21     15. A surgical implant as claimed in any of claims  
22           2, 4 to 10 or 12 wherein the unextended length  
23           of the implant is between 4 to 8 cm.  
24
- 25     16. A surgical implant as claimed in any preceding  
26           claim wherein the implant is of width 0.3 cm to  
27           1.7 cm.  
28
- 29     17. A surgical implant as claimed in any preceding  
30           claim wherein the implant is of thickness 100  
31            $\mu\text{m}$  to 600  $\mu\text{m}$ .  
32

1 18. A surgical implant as claimed in any preceding  
2 claim wherein at least one of the fixing zones  
3 comprises pores which extend through the fixing  
4 zone material.

5

6 19. A surgical implant as claimed in any preceding  
7 claim wherein at least one of the fixing zones  
8 comprises pits that indent at least one surface  
9 of the fixing zone, but do not extend through  
10 the fixing zone.

11

12 20. A surgical implant as claimed in any preceding  
13 claim wherein at least one of the fixing zones  
14 comprise slits that extend through the fixing  
15 zone material.

16

17 21. A surgical implant as claimed in any preceding  
18 claim wherein at least one microgroove is  
19 provided on at least one fixing zone.

20

21 22. A surgical implant as claimed in claim 21  
22 wherein a microgroove is between 0.5  $\mu\text{m}$  to 7  $\mu\text{m}$   
23 in width and 0.25  $\mu\text{m}$  to 7  $\mu\text{m}$  in depth.

24

25 23. A surgical implant as claimed in any one of  
26 claims 1, 3 to 22 wherein the supporting zone  
27 comprises a marker to aid the suitable location  
28 of the supporting zone under the urethra.

29

30 24. A surgical implant as claimed in any preceding  
31 claim wherein each fixing zone comprises at

- 1           least one aperture adapted to receive a tool  
2           for insertion of the implant into the body.  
3
- 4       25.   Use of an implant as claimed in any preceding  
5           claim to support the urethra.  
6
- 7       26.   Use of an implant as claimed in any preceding  
8           claim for treating urinary incontinence or  
9           uterovaginal prolapse.  
10
- 11      27.   A tool for inserting the implant as claimed in  
12           any preceding claim the tool comprising an  
13           elongate shaft including a semi-blunt point at  
14           a first end and holding means to releasably  
15           mount the surgical implant on the shaft.  
16
- 17      28.   A tool as claimed in claim 27 wherein the  
18           holding means comprises a recess extending from  
19           the semi-blunt point of the elongate shaft the  
20           recess capable of receiving a portion of the  
21           surgical implant.  
22
- 23      29.   A tool as claimed in claim 28 wherein the  
24           recess is angled to twist a surgical implant  
25           received by the recess along its longitudinal  
26           length such that the longitudinal edges of the  
27           fixing zone of the implant are directed away  
28           from the bladder.  
29
- 30      30.   A tool as claimed in claims 28 and 29 wherein  
31           the recess is offset such that a first portion  
32           forming a wall of the recess is longer than a ...

1           second portion forming an opposite wall of the  
2           recess.

3  
4       31. A tool as claimed in claim 27 wherein the  
5           holding means comprises an abutment located  
6           toward the first end of the elongate shaft  
7           wherein the semi-blunt point of the elongate  
8           shaft is capable of being passed through the  
9           surgical implant and the abutment is capable of  
10          hindering movement of the surgical implant down  
11          the length of the shaft toward the second end  
12          of the elongate shaft.

13  
14       32. A method of supporting the urethra comprising  
15          the steps of;

16  
17          introducing a surgical implant as claimed in  
18          any of claims 1, 3 to 24 into at least one  
19          incision made on the upper wall of the vagina;

20  
21          inserting a first end of the surgical implant  
22          behind the first side of the urethra;

23  
24          locating a first fixing zone into the tissues  
25          of the retropubic space fascia without  
26          penetrating the rectus sheath;

27  
28          inserting a second end of the surgical implant  
29          behind a second side of the urethra; and

30  
31          locating a second fixing zone into the tissues  
32          of the retropubic space above without.

1 penetrating the rectus sheath, such that the  
2 supporting zone passes under the urethra.  
3  
4 33. A method of transmitting intra-abdominal  
5 pressure to the urethra comprising the steps of  
6  
7 introducing an anchor strip into at least one  
8 incision made on the upper wall of the vagina;  
9  
10 inserting a first portion of the anchor strip  
11 behind the first side of the urethra;  
12  
13 locating a first portion including a fixing  
14 zone into the tissues of the retropubic space  
15 above the endopelvic fascia without penetrating  
16 the rectus sheath;  
17  
18 locating a second portion of the anchor strip  
19 alongside the urethra in the suburethral  
20 pressure compartment below the endopelvic  
21 fascia;  
22  
23 inserting a second anchor strip behind a second  
24 side of the urethra;  
25  
26 locating a first portion including a fixing  
27 zone of the second anchor strip into the  
28 tissues of the retropubic space above the  
29 endopelvic fascia without penetrating the  
30 rectus sheath; and  
31

- 1            locating a second portion of the second anchor  
2            strip alongside the urethra in the suburethral  
3            pressure compartment below the endopelvic  
4            fascia.  
5
- 6        34.    A method as claimed in any of claims 32 or 33  
7            which further comprises the step of moving the  
8            retaining means from an inserting position to a  
9            retaining position.  
10
- 11       35.    Use of a method as claimed in any of claims 32  
12            to 34 in treating urinary incontinence or  
13            uterovaginal prolapse.  
14